

# INTRODUCTION TO EMC RECOVERPOINT 3.4.1: NEW FEATURES AND FUNCTIONS

Applied Technology

## Abstract

This white paper discusses EMC® RecoverPoint version 3.4.1 software. This software locally and/or remotely replicates one or more SAN or iSCSI volumes in one or more storage systems and maintains an online history of all changes to the volumes. RecoverPoint enables you to bring databases and applications back online quickly and easily after an event like data corruption. RecoverPoint technology enables you to dramatically reduce recovery time and increase the number of recovery points for your application environments.

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## Executive summary

The EMC® RecoverPoint family provides cost-effective, local continuous data protection (CDP) and continuous remote replication (CRR) solutions that allow for any-point-in-time data recovery. RecoverPoint is a family of products consisting of RecoverPoint/CL for replicating across EMC and non-EMC storage; RecoverPoint/EX for VMAXe™, VNX™ series, CLARiiON® CX3 and CX4, and Celerra® unified storage environments; and RecoverPoint/SE for VNX series, CLARiiON, and Celerra unified environments. RecoverPoint/EX and RecoverPoint/SE are optimized for the EMC storage they support with built-in array-based write splitters.

RecoverPoint/SE is the offering that simplifies continuous data protection and replication for VNX, Celerra unified, and CLARiiON CX™, CX3 UltraScale™, and CX4 series arrays. RecoverPoint/EX supports local and remote replication for VMAXe, VNX series, and CLARiiON CX3 and CX4 arrays. RecoverPoint/CL is the full-featured offering that adds support for intelligent fabrics, heterogeneous servers, and heterogeneous storage platforms.

All products are appliance-based data protection solutions designed to ensure the integrity of production data at local and/or remote sites. These products enable customers to centralize and simplify their data protection management and allow for the recovery of data to nearly any point in time.

RecoverPoint CDP provides local continuous replication of every write between a pair of local volumes residing on one or more arrays. RecoverPoint CRR provides remote replication between pairs of volumes residing in two different sites. For asynchronous remote replication multiple writes are collected at the local site, compressed, and sent across periodically to the remote site where they are uncompressed, written to a journal, and then distributed to the target volumes. For local replication and synchronous remote replication every write is collected and written to a local or remote journal and then distributed to the target volumes. In both cases the journal data provides the ability to roll back the target volume to any point in time. RecoverPoint utilizes policies that map the recovery time objectives (RTO) and recovery point objectives (RPO) by consistency groups, allowing for flexibility in protecting multiple applications.

RecoverPoint is designed to minimize impact to a production host's I/O throughput or CPU load. RecoverPoint intercepts write I/Os to the source volume at “write-speed,” which ensures that there is minimal write performance degradation seen by the production host. It is important to properly size RecoverPoint and configure the array to ensure minimal impact to applications. EMC has several tools available that can be used to size RecoverPoint. These tools can provide guidance on the amount of bandwidth and number of RecoverPoint appliances, as well as array throughput and journal sizes to meet the customer's RPOs and protection needs.

EMC RecoverPoint 3.4.1 introduces support for the VMAXe storage array and for support of an array-based write splitter for the VMAXe. EMC RecoverPoint 3.4

introduces several capabilities including support for the VNX series of storage arrays, a new ordering structure, WAN deduplication, and unified replication.

## Introduction

Today's businesses are faced with an ever-increasing amount of data that threatens to undermine their existing storage management solutions. Data protection is no longer the simple copying of yesterday's changed files to tape. Critical data changes occur throughout the day, and to protect this data customers are frequently turning to new technology such as continuous data protection and continuous remote replication. This white paper introduces the new features and functions in RecoverPoint version 3.4 and explains how they can be used to improve overall data protection and recovery.

### Audience

This white paper is intended for systems integrators, systems administrators, and members of the EMC and partners professional services community. This paper serves as an overview to the new features and functions in RecoverPoint version 3.4. The [References](#) section provides links to more information on RecoverPoint.

## Introduction to RecoverPoint 3.4

RecoverPoint 3.4 is a major release of the RecoverPoint software for RecoverPoint and RecoverPoint/SE. Users with RecoverPoint/CL or RecoverPoint/SE who want the new features should upgrade to RecoverPoint or RecoverPoint/SE version 3.4. Customers who are using generation 1 (GEN1) RecoverPoint appliances will not be able to upgrade to RecoverPoint 3.4. However, these customers can purchase new GEN4 RecoverPoint appliances and upgrade their current configuration to operate on GEN4 appliances. At this point they can upgrade to RecoverPoint 3.4.

### New features in RecoverPoint 3.4.1

RecoverPoint 3.4.1 introduces new features and capabilities for local and remote replication. Some of the new features include:

- [Support for the VMAXe](#)
- [New family and ordering structure](#)

### Support for the VMAXe

RecoverPoint/CL 3.4.1 and RecoverPoint/EX 3.4.1 support LUNs from the VMAXe storage array. RecoverPoint/SE does not support the VMAXe storage array. RecoverPoint releases earlier than 3.4.1 do not support the VMAXe storage array. The VMAXe also includes an array-based write splitter for RecoverPoint that is supported in RecoverPoint/CL 3.4.1 and RecoverPoint/EX 3.4.1.

## New RecoverPoint family and ordering structure

The RecoverPoint family includes three products: RecoverPoint/SE, RecoverPoint/EX, and RecoverPoint/CL. All products in the RecoverPoint family are appliance-based data protection solutions designed to ensure the integrity of production data at local and/or remote sites. These products enable customers to centralize and simplify their data protection management and allow for the recovery of data to nearly any point in time.

RecoverPoint/SE is the VNX- and CLARiiON-specific offering designed for continuous data protection and replication for VNX series, CLARiiON AX4-5, CX, CX3, CX4, and Celerra unified storage arrays. RecoverPoint/EX is the offering that simplifies continuous data protection and replication by using array-based write splitting for the VMAXe, VNX series, Celerra unified, and CLARiiON CX3 UltraScale and CX4 series of arrays. RecoverPoint/CL is the full-featured offering that adds support for the EMC Symmetrix VMAX™, intelligent fabrics, heterogeneous servers, and heterogeneous storage platforms.

## New features in RecoverPoint 3.4

RecoverPoint 3.4 introduces new features and capabilities for local and remote replication. Some of the new features include:

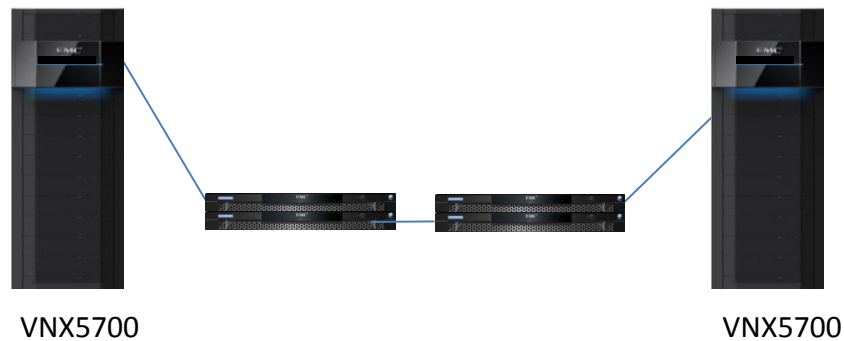
- [Support for the VNX series](#)
- [New ordering structure](#)
- [WAN deduplication](#)
- [Unified remote replication](#)
- [Additional RecoverPoint capabilities](#)

## Support for the VNX series

RecoverPoint 3.4 and RecoverPoint/SE 3.4 support LUNs from the VNX series of arrays. Neither product supports the VNXe™ series of arrays. RecoverPoint releases earlier than 3.4 do not support the VNX series of arrays.

## VNX array support in RecoverPoint 3.4 and RecoverPoint/SE 3.4

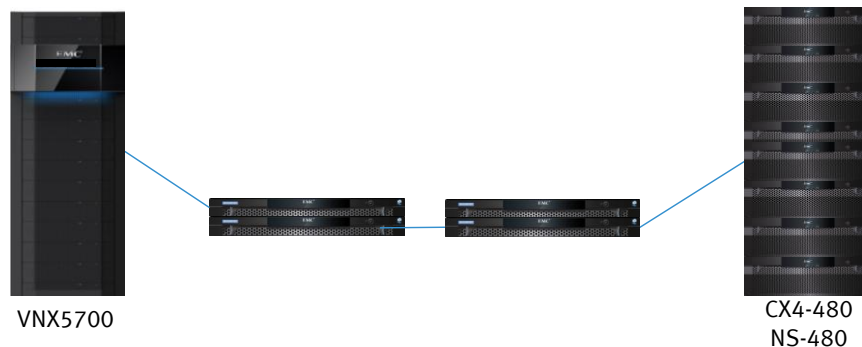
Customers with RecoverPoint who have VNX series arrays, including the VNX5100™, VNX5300™, VNX5500™, VNX5700™, and VNX7500™, and want to use RecoverPoint/SE must select either the local protection suite or the remote protection suite for their VNX array. Customers that want to use RecoverPoint do not need to select either the local or remote protection suites. The local protection suite gives the customer the right to use RecoverPoint/SE CDP and the remote protection suite gives the customer the right to use RecoverPoint/SE CRR. If both the local and remote protection suites are selected for the same array, then the customer has the right to utilize RecoverPoint/SE CLR data protection.



**Figure 1. Replication between two VNX series arrays**

### RecoverPoint/SE support of VNX with CLARiiON or Celerra unified arrays

Customers with RecoverPoint 3.4 can use any VNX series array in addition to the other arrays supported by RecoverPoint. Customers with RecoverPoint/SE 3.4 can replicate between a VNX series array and a CLARiiON or Celerra unified array. The customer is limited to having one array (either a VNX, CLARiiON, or Celerra unified array) attached to a RecoverPoint/SE cluster.



**Figure 2. Replication between a VNX5700 and a CLARiiON or Celerra unified array**

### RecoverPoint support of the VNX series of arrays with non-VNX arrays

Customers with RecoverPoint 3.4 can use any VNX series array, including the VNX5100, VNX5300, VNX5500, VNX5700, and VNX7500, in addition to the other arrays supported by RecoverPoint. A list of all supported arrays is available in the [EMC Support Matrix](#).

### New ordering structure for RecoverPoint/SE

Many customers have requested license changes that reflect the model of array that is being used as the source or destination for replication, and not just the size of the production data. Starting with version 3.4, RecoverPoint/SE is licensed per site per VNX, CLARiiON, and Celerra unified array model.

### New RecoverPoint/SE customers

New customers will select the CLARiiON or Celerra unified array model used by the RecoverPoint/SE cluster at each site and the appropriate models will be generated by

the configurator. New VNX customers must purchase RecoverPoint/SE through the local protection suite and/or remote protection suite for each VNX array that will be replicated locally and/or remotely.

### Existing RecoverPoint/SE customers

Existing RecoverPoint/SE customers with a capacity-based license that want additional capacity can convert to an array-based license by ordering a one-time conversion model for each RecoverPoint/SE cluster at each site. If the customer wants to expand their capacity-based license they must upgrade to RecoverPoint, which remains licensed by production capacity. If the customer wants to stay with their current capacity-based license for RecoverPoint/SE, they can do so.

### WAN deduplication for remote replication

WAN costs continue to rise and are a concern for most customers. These customers have approached EMC to request that RecoverPoint continue to reduce the WAN bandwidth used for replication. To address this request, RecoverPoint adds support for deduplication of data sent over WAN and combines it with its other intelligent data compression and bandwidth reduction technologies, which results in up to an 11:1 reduction in WAN bandwidth.

### RecoverPoint customers with GEN4 RecoverPoint appliances

The WAN deduplication process requires that the local and remote RecoverPoint clusters all use GEN4 RecoverPoint appliances. If both clusters are not homogeneous GEN4 appliances, then the deduplication option is not provided. Deduplication can be enabled on a consistency group basis using the RecoverPoint Administrative GUI or the RecoverPoint command line interface. Deduplication operates on the data replicated between sites across the WAN. When deduplication of data is enabled, then during replication a fingerprint is created for each 512-byte block of data. If the fingerprint does not exist at the remote site then the data is transferred and the fingerprint is stored. If the fingerprint does exist, then the data is not sent to the remote site.

### RecoverPoint customers with GEN1 or GEN3 RecoverPoint appliances

Customers running RecoverPoint with GEN1 appliances cannot upgrade to RecoverPoint 3.4 but must stay at a release earlier than 3.4. Customers running RecoverPoint 3.4 on GEN3 cannot utilize the WAN deduplication capability. However, these customers can purchase new GEN4 appliances and upgrade their existing configuration by replacing their existing appliances with GEN4 appliances.

### Unified remote replication

With the introduction of the VNX series of storage arrays, EMC has a single offering that unifies block and file storage. In support of this unification, RecoverPoint/SE has the ability to replicate SAN and NAS volumes. NAS volumes are only remotely replicated with the use case of disaster recovery.

## RecoverPoint customers with VNX arrays

Customers who are using RecoverPoint/SE 3.4 or later with a VNX series array, including a VNX5100, VNX5300, VNX5500, VNX5700, or VNX7500, can use RecoverPoint/SE for NAS replication. Additionally, customers with a VNX VG2 or VNX VG8 connected to a VNX series or CLARiiON CX4 array can use RecoverPoint/SE for NAS replication.

RecoverPoint/SE supports bi-directional replication of NAS file systems and can be integrated with SAN replication. NAS replication is primarily used for disaster recovery. The feature provides NAS file system and virtual Data Mover remote replication to a secondary site by implementing Data Mover-level replication and cabinet-level failover. The user can choose asynchronous or synchronous replication. Not all NAS file systems within a cabinet are required to be replicated to the disaster recovery site. Users can replicate their file systems by selecting the appropriate back-end LUNs and placing them in a single NAS consistency group. These NAS LUNs may span multiple file systems, which are hosted by multiple Data Movers on the same VNX array.

## RecoverPoint customers with other arrays

RecoverPoint/SE does not support NAS replication with VNX VG2 or VNX VG8 arrays connected to an EMC Symmetrix®. RecoverPoint/SE also does not support NAS replication for Celerra, Celerra unified, or VNXe family arrays.

## Additional RecoverPoint capabilities

RecoverPoint 3.4 includes other features that improve the functionality or experience for existing and new customers.

### VNX array-based write splitter

RecoverPoint 3.4 includes support for a VNX series array-based write splitter that runs inside the VNX Operating Environment. Customers running RecoverPoint 3.4 can utilize an array-based write splitter for their VNX series arrays as well as for their CLARiiON CX3 and CX4 series arrays.

### AIX 6.1 host-based write splitter

RecoverPoint 3.4 includes a host-based write splitter for AIX 6.1 operating environments. Customers running AIX 6.1 can install a host-based write splitter with the same functionality as the AIX 5.3 host-based splitter.

### Call home support

RecoverPoint 3.4 monitors its own health and the health of RecoverPoint appliances using a pre-defined set of rules developed in conjunction with EMC Support. If a problem is detected then an automatic service request may be opened with EMC Customer Service with information on the problem automatically sent to EMC Support.

## Cluster Enabler 4.1

RecoverPoint/Cluster Enabler has been updated to add support for Cluster Shared Volumes and to incorporate some release fixes. Cluster Shared Volumes are supported only with Cluster Enabler 4.1 and Microsoft Windows Server 2008 R2 SP1.

## Total customer experience improvements

RecoverPoint 3.4 includes several features that improve the total customer experience. These include:

- **Event and error improvements:** RecoverPoint 3.4 adds a text filtering capability for RecoverPoint email alerts, adds a copy to the clipboard option for event details, improves the readability of certain events, and has an option to clear the event log.
- **Improvements to throttling:** RecoverPoint 3.4 adds two throughput options that affect the initialization I/O on a per-RecoverPoint cluster basis.
- **Support for intelligent fabric operating environments:** RecoverPoint 3.4 adds support for Brocade FOS 6.3.2, 6.4.1, and SAS 3.4.2. RecoverPoint 3.4 also adds support for Cisco NX-OS 4.2.4, 5.0.4, and SSI 5.0.4s.

## Conclusion

EMC RecoverPoint offers continuous data protection, continuous remote replication, and concurrent local and remote data protection functionalities. With its customer-defined RPOs and RTOs, RecoverPoint allows critical business processes to be available locally for operational recovery, or remotely at a disaster recovery site hundreds or thousands of miles away from the primary site. With support for consistency groups, RecoverPoint is a no-data-loss model with full write-order consistency for replicated volumes that can span multiple heterogeneous storage systems and servers.

## References

More information on EMC RecoverPoint can be found at the [RecoverPoint page](#) on EMC.com and in the following documents on the EMC [Powerlink](#)<sup>®</sup> website:

- [Improving Microsoft Exchange Server Recovery with EMC RecoverPoint – Applied Technology](#)
- [EMC RecoverPoint Family Overview – A Detailed Review white paper](#)
- [Improving VMware Disaster Recovery with EMC RecoverPoint – Applied Technology](#)
- [Solving Data Protection Challenges with EMC RecoverPoint – Best Practices Planning](#)
- [Using EMC RecoverPoint Concurrent Local and Remote for Operational and Disaster Recovery – Applied Technology white paper](#)